

Application No. 10/509,249
Attorney Docket No. 12480-000067/US

AMENDMENTS TO THE CLAIMS

The following is a complete, marked up listing of revised claims with a status identifier in parentheses, underlined text indicating insertions, and strikethrough and/or double-bracketed text indicating deletions.

LISTING OF CLAIMS

1. (ORIGINAL) A drug that comprises hollow nanoparticles of a particle-forming protein, the hollow nanoparticles displaying an antibody against a specific cell or specific tissue, and encapsulating a substance to be transferred into a cell for treating a disease.
2. (ORIGINAL) The drug as set forth in claim 1, wherein the antibody is a cancer specific antibody or anti-virus protein antibody.
3. (ORIGINAL) The drug as set forth in claim 1, wherein the antibody is displayed on a particle surface by binding to a ZZ tag fused with the particle-forming protein.
4. (ORIGINAL) The drug as set forth in claim 1, wherein the antibody is biotin-modified and displayed on a particle surface with its biotin binding to streptavidin or its derivative that is ligated to a streptag fused with the particle-forming protein.
5. (ORIGINAL) The drug as set forth in claim 1, wherein the antibody is a single chain

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antibody fused with the particle-forming protein.

6. (ORIGINAL) The drug as set forth in claim 1, wherein the hollow nanoparticles of a particle-forming protein are expressed in a eukaryotic cell.

7. (ORIGINAL) The drug as set forth in claim 6, wherein the eukaryotic cell is selected from a group consisting of a yeast cell, insect cell, and animal cell.

8. (ORIGINAL) The drug as set forth in claim 1, wherein the particle-forming protein comprises a modified hepatitis B virus surface-antigen protein.

9. (ORIGINAL) The drug as set forth in claim 8, wherein the modified hepatitis B virus surface-antigen protein is modified to lack some of amino acids in a pre-S region.

10. (ORIGINAL) The drug as set forth in claim 8, wherein the modified hepatitis B virus surface-antigen protein is serotype y, and modified to retain at least N-terminal amino acid residues 1 to 20 in the entire amino acid sequence of the pre-S region.

11. (ORIGINAL) The drug as set forth in claim 10, wherein the modified hepatitis B virus surface-antigen protein is modified to lack N-terminal amino acids 50 to 153 in the entire amino acid sequence of the pre-S region.

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12. (ORIGINAL) The drug as set forth in claim 8, wherein the modified hepatitis B virus surface-antigen protein is serotype d, and modified to retain at least N-terminal amino acid residues 12 to 31 in the entire amino acid sequence of the pre-S region.

13. (ORIGINAL) The drug as set forth in claim 12, wherein the modified hepatitis B virus surface-antigen protein is modified to lack N-terminal amino acids 61 to 164 in the entire amino acid

14. (ORIGINAL) The drug as set forth in claim 1, wherein the disease-treating substance comprises a gene.

15. (ORIGINAL) The drug as set forth in claim 14, wherein the gene comprises a thymidine kinase (HSV1tk) gene derived from simple herpes virus.

16. (ORIGINAL) The drug as set forth in claim 1, wherein the drug is administered to the human body through intravenous injection.

17. (ORIGINAL) A disease treating method comprising administering the drug of claim 1.

18. (ORIGINAL) Hollow nanoparticles that comprise a hepatitis B virus surface-antigen protein of serotype y, the hepatitis B virus surface-antigen protein forming particles and being modified to retain at least N-terminal amino acid residues 1 to 20 in the entire amino acid sequence

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of a pre-S region.

19. (ORIGINAL) The hollow nanoparticles as set forth in claim 18, wherein the modified hepatitis B virus surface-antigen protein is modified to lack N-terminal amino acids 50 to 153 in the entire amino acid sequence of the pre-S region.

20. (ORIGINAL) Hollow nanoparticles that comprise a hepatitis B virus surface-antigen protein of serotype d, the hepatitis B virus surface-antigen protein forming particles and being modified to retain at least N-terminal amino acid residues 12 to 31 in the entire amino acid sequence of a pre-S region.

21. (ORIGINAL) The hollow nanoparticles as set forth in claim 20, wherein the modified hepatitis B virus surface-antigen protein is modified to lack N-terminal amino acids 61 to 164 in the entire amino acid sequence of the pre-S region.

22. (ORIGINAL) The drug as set forth in claim 2, wherein the antibody is displayed on a particle surface by binding to a ZZ tag fused with the particle-forming protein.

23. (ORIGINAL) The drug as set forth in claim 2, wherein the antibody is biotin-modified and displayed on a particle surface with its biotin binding to streptavidin or its derivative that is ligated to a streptag fused with the particle-forming protein.

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24. (ORIGINAL) The drug as set forth in claim 2, wherein the antibody is a single chain antibody fused with the particle-forming protein.

25. (ORIGINAL) The drug as set forth in claim 2, wherein the hollow nanoparticles of a particle-forming protein are expressed in a eukaryotic cell.

26. (ORIGINAL) The drug as set forth in claim 9, wherein the modified hepatitis B virus surface-antigen protein is serotype y, and modified to retain at least N-terminal amino acid residues 1 to 20 in the entire amino acid sequence of the pre-S region.

27. (ORIGINAL) The drug as set forth in claim 9, wherein the modified hepatitis B virus surface-antigen protein is serotype d, and modified to retain at least N-terminal amino acid residues 12 to 31 in the entire amino acid sequence of the pre-S region.

28. (ORIGINAL) A disease treating method comprising administering the drug of claim 2.

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